Xandros Server for Small and Medium Business:

Leveraging a graphical interface and powerful workflow management to reduce administrative complexity

xandros.

Background

Since the advent of Linux technology in 1991, large enterprises have known—and embraced—its advantages. This open-source alternative to Windows®, conceived specifically as a means to leverage UNIX-like performance for a fraction of the cost, empowers businesses through a more flexible, customizable technology model than traditionally available in a Windows environment. Organizations that have deployed the Linux operating system (OS) have experienced several key business benefits:

- **Escape from the costly, and often burdensome, reality of Windows licensing models** – Microsoft's intricate matrix of software usage rights often locks organizations into long-term maintenance contracts in order to guarantee upgrades, patches and fixes—and often scares companies into over-purchasing in order to avoid potentially disastrous software audits. And, depending upon how and for what purpose the software is purchased (through an OEM, for example, or for deployment on a system or server), volume license discounts may not apply—meaning even small enterprises can spend tens of thousands of dollars annually on licensing alone. Linux changes all of that. Governed by the GNU General Public License (or GPL), Linux software may be freely copied and distributed subject to vastly simplified terms. While this does not mean Linux software is without cost, it does mean organizations can now disentangle themselves from rigid support models—and spend far less money in doing so.

- **Reliability and stability** – Open-source software is subject to much the same rigor as peer-reviewed medical research: any developer's contribution is immediately available to colleagues for critique or acclaim. Driven by reputation rather than revenue, the extensive network of Linux developers places quality above all else when designing their products. Ultimately, customers benefit from this diligence in the form of consistently dependable performance.

- **Less vulnerable to security threats** – Architecturally, Linux is far less susceptible to viruses, spyware and other malicious intrusions than alternative operating systems. Unauthorized access to the root directory is virtually impossible in Linux, which protects more data and causes less harm if and when a breach does occur. Thanks to its open-source heritage, developers can effectively address vulnerabilities before hackers can exploit them.

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- **Highly scalable and vendor independent** – Linux runs on virtually any hardware platform on the market. This means businesses are free to choose the platform or platforms most appropriate, and cost-effective, for their environment—as well as leverage long-forgotten "closetware" and extend the lifespan of legacy systems. This reality also enables true scalability across the enterprise; as needs evolve, businesses can add "clusters" of Linux functionality to address specific tasks such as ERP and CRM processes. (Many of these key business initiatives are being specifically tailored for the Linux environment by leading ISVs).

- **Thoroughly customizable** – Finally, because Linux customers have full access to their products' source code, enterprises no longer have to wait for vendor updates to meet internal requirements. IT staff can immediately developand deploy changes to the system to support unique organizational needs.

Linux and the Small-To-Medium Business

While many of these same benefits are equally attractive to the SMB market, smaller organizations have historically found it difficult, if not impossible, to adopt a Linux model. When compared to standard client/server operating systems, Linux is highly complex and requires specialized knowledge and training—which is costly in terms of real funds and personnel time. The resources required to administer even a partial Linux environment often can't justify a deployment—and the customary lack of support from ISVs means limited operational capacity. Inherent incompatibilities with Windows environments is also often a deal-breaker, since almost every enterprise depends upon Windows to drive at least some of their important applications and processes. While a full Linux deployment may be the ultimate goal, it's unrealistic for smaller organizations with limited technology budgets to accomplish this quickly, if at all. Finally, many Windows-based applications simply don't port well to Linux; those that do often involve a complicated and expensive migration strategy that doesn't pass the cost/benefit test.

Fortunately, favorable changes in the marketplace mean that Linux technology is now a viable—and attainable—option for smaller organizations.

First, Linux has performed successfully across a broad spectrum of organizations—both in government and the private sector—in a wide variety of business applications. Given that large enterprises are often the most risk-averse in adopting new technologies, and that these same enterprises have enjoyed positive results from Linux deployments, smaller organizations can feel comfortable knowing that a Linux strategy can meet a diverse set of business needs while offering a high level of reliability and support. Linux is now part of the international technology mainstream; as such, its vast development community has worked to deconstruct many previous barriers to adoption.

"Linux has demonstrated its reliability to the point that businesses of all types and sizes have come to regard it as a worthy alternative to . . . Microsoft Windows."
 - *Gartner* [1]

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[1] Gartner Research Note: "Linux: What Major IT Vendors are Doing," M. Hubkey and C. Lubrano, 15 November 2004.

Second, leading software vendors such as BMC, Computer Associates, Novell, Oracle, SAP, Sun Microsystems and Veritas, among others, have embraced Linux technology and are actively developing Linux-compatible solutions. In fact, a recent IDC survey reveals that through 2009, "content applications"—e.g., CRM and ERP—will experience strong growth on the Linux platform[2]. This is due in part to the fact that "market demand and performance are the primary reasons" ISVs are pursuing Linux-specific application development. Small businesses looking to implement a Linux strategy can now avail themselves of capabilities previously only available to Windows customers.

Third, the open-source nature of Linux allows its commercial distributors to focus on high-level technical and customer support—assuaging lingering fears about implementing a new technology with limited (or no) specialized staff. While early adopters of Linux were literally on their own, today's enterprise customers and small businesses alike benefit from readily available, highly responsive expertise and training for whichever solutions they choose to implement. Most Linux distributors emphasize customer- rather than product-driven support, which ensures a tailored response to specific needs.

Given these realities, a recent AMI-Partners press release predicts that over the next several years, the " . . . number of Linux-owning SMBs . . . [will] rise from 1.2 million to 2.7 million businesses—a compounded annual growth rate of 18%."[3] Small enterprises ready to consider alternatives to Windows—including the Linux OS—should evaluate potential distributors based on several key criteria, according to Gartner[4] :

• Availability of business applications that run on the operating system
• Availability of skills to support the operating system environment
• Ease of integration with the established operating system/established environment

Gartner suggests that "the biggest challenges to Linux adoption continue to be the lack of Linux skills and Linux-based applications."[5] Xandros Server effectively addresses these challenges by offering the businesses the benefits of Linux, without any of the complexities or associated costs. Employing graphical management tools, centralized administration, and workflow-based wizards, Xandros Server streamlines server management and eliminates the need for Linux server administration skills or use of the command line. This revolutionary design enables Windows Server administrators to manage Xandros servers without any additional training, and businesses to use their administrative resources more efficiently.

Additionally, Xandros Server provides the services and applications small businesses demand. Offering seamless Windows interoperability, Xandros Server provides for a complete or partial evolution to a Linux environment. Xandros Server can authenticate to Windows domains and operate as a Windows PDC, and includes all the necessary tools and wizards to easily transition users, computers and services from Windows to Xandros.

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[2] IDC: "Developing the Linux Ecosystem: Opportunities and Challenges for Application Software Vendors," J. Tiley and S. Graham, January 2006.
[3] "AMI-Partners Predicts Significant Growth for Linux Servers and Desktops in SMB Market, Driven by APAC GEOS and Channel Partners," Business Wire, January 10, 2005.
[4] Gartner Research Note: "North American SMBs Still Favor Windows Over Linux as Server Platform," M. Krammer, 4 March 2005.

With the introduction of its award-winning server operating system in 2006, Xandros is the first Linux vendor to successfully address each of these criteria.

Xandros® Server™ – Power Without Complexity™

Xandros Server combines the power, features and functionality of Linux services with the familiarity of Windows server administration. Built on the Debian version of Linux—widely recognized as the most stable and reliable, thanks to the development community's unrelenting commitment to quality and rigorous QA cycles—Xandros Server blends internally developed applications with technology from both the open source and commercial communities to deliver a robust combination of functionality, security, stability and ease of use. Finally, small to midsize organizations can enjoy the benefits of Linux without the associated costs and complexities.

Xandros Server: Built on Debian

Xandros Server is one of the few commercially based Linux servers based on the Debian GNU/Linux operating system—a technology developed around the Linux kernel by a global network of volunteer open-source collaborators.

Debian offers some key advantages over other versions of Linux for manufacturers basing their technologies on it:

> Debian is designed for the business environment. Its protracted release cycle and meticulous quality assurance processes translate to a well tested, highly stable and reliable product. This also provides long-term continuity and prevents the need for frequent updates and re-installations.

> Debian's "packages"—the actual software that runs on the operating system—are known for their simple update process. Using its APT automated package management system, Debian maps interdependencies among all of its applications, and eliminates incompatibilities and other orphan files. This means administrators no longer have to decipher such interdependencies themselves, nor spend time hunting down outdated application fragments for deletion.

Xandros builds upon this functionality with Xandros Networks—a graphical interface that further simplifies package management for Xandros Server. Xandros Networks automatically pulls the latest Debian packages into a library organized into specific categories. Now, for example, an administrator seeking an Oracle log database update does not need to visit and search through the Oracle site; instead, that administrator can use Xandros Networks for a single-click download and installation of the update from Xandros Networks into the Xandros Server.

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[5]Gartner User Survey: "Small and Midsize Business PCs and Servers, North America," J. Browning, M. Margevicius and J. En

Ease of use

For IT staff trained as Windows administrators—and the executives shaping their budgets—a potential Linux transition often inspires uncertainty. Staff fear the lack of appropriate knowledge and skills, and the resulting job insecurity such a lack might cause; executives worry that investing in specialized training will adversely impact IT productivity (due to staff unavailability) and, ultimately, the bottom line. Hiring Linux specialists is certainly a viable option, but such talent is in high demand and short supply—begging the difficult question of how to fund both legacy and emerging IT environments without alienating existing, hard-won staff or compromising the project's success.

Xandros Server leverages the staff you have through a powerful set of features and functionality designed to provide true ease of use—effectively addressing any concerns about skills and resource availability.

Xandros Managed Community

The Xandros Managed Community forms the core of the Xandros Server architecture—and revolutionizes server management via task automation and a streamlined, centralized approach to Linux server administration.
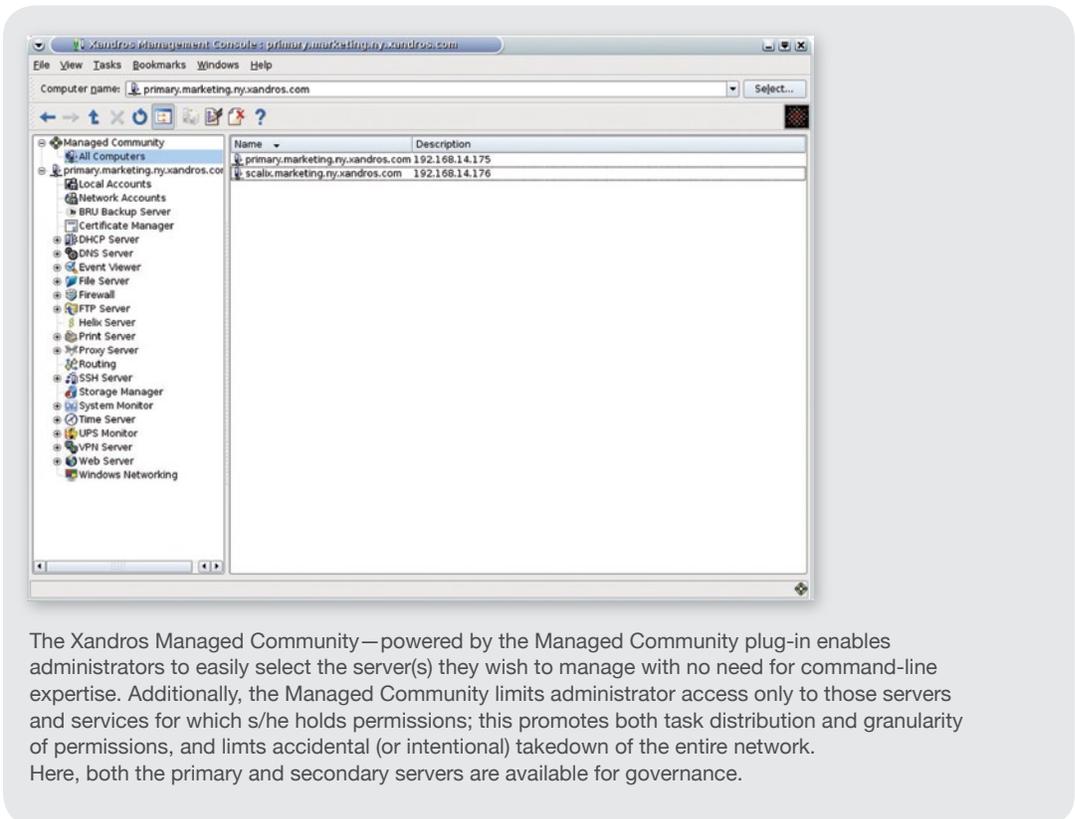

The Xandros Managed Community—powered by the Managed Community plug-in enables administrators to easily select the server(s) they wish to manage with no need for command-line expertise. Additionally, the Managed Community limits administrator access only to those servers and services for which s/he holds permissions; this promotes both task distribution and granularity of permissions, and limts accidental (or intentional) takedown of the entire network.
Here, both the primary and secondary servers are available for governance.

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Unlike current server architectures—which require independent management of servers and services, and build no bridges of awareness among those servers and services—a Xandros Managed Community creates an integrated environment in which each service is aware of all the others in the group. Building a Managed Community is simple: the administrator designates a primary server—which acts as the domain of the community—and as many secondary servers as desired. (Depending upon organizational need, Xandros Server supports the creation of multiple managed communities). Within this structure, the primary server is logically tied to all secondary servers and their associated services; this frees administrators from having to track relationships among services, and allows them to leverage service interdependencies for more efficient task completion through workflow automation. Because this workflow automation is completely graphical, and includes built-in wizards to guide services management, even the most Linux-timid administrator can quickly learn, and be comfortable with, the system.

For example, assuming the presence of a firewall, if an administrator creates a new Web site on the network, and forgets to open the firewall ports—or isn't sure how—no problem. Because of the interdependent relationships within the Xandros Managed Community, Xandros Server will check for an appropriate firewall service, and will prompt the administrator with a simple Y/N question: "Do you want to create a new firewall rule?"

As another example, when adding a user to the network, the Add User Wizard enables administrators to simultaneously assign appropriate permissions for services such as email—even if that administrator isn't designated for user management itself (see diagram). In other words, with Xandros Server, any administrator—regardless of access—can add permissions for particular service(s) without having to return to a domain account and assign privileges individually. Dynamic templates streamline repetitive tasks, freeing IT resources for more strategic initiatives. In all cases, the administrator retains ultimate control over what automation happens and when.
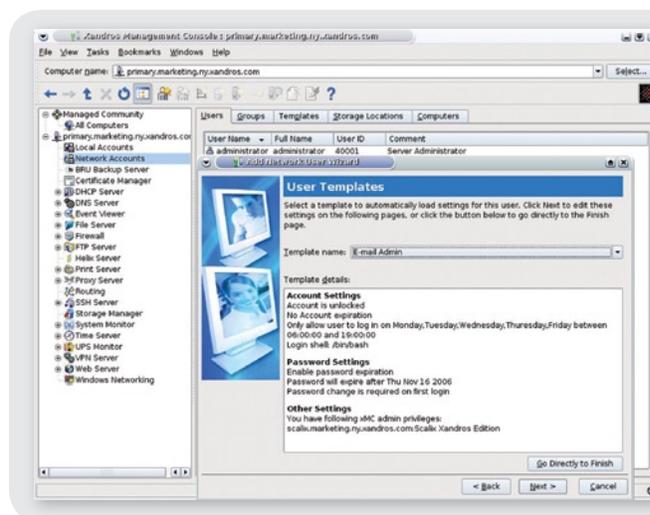
Xandros Server supports the creation of templates for typical user settings, which vastly streamlines functions such as adding new hires to the organization's network. Now, rather than entering pages of repetitive information, administrators simply change the user name and Xandros handles the rest.

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Xandros Management Console (xMC)

Xandros Management Console (xMC) eliminates the need for Linux expertise and command-line management—meaning existing IT staff can immediately function as Linux administrators with no further need for, or investment in, training. The familiar graphical landscape enables immediate productivity from Windows-based administrators, and provides access to various administrative tasks, such as managing user and network accounts, setting system alerts, and configuring event reports.
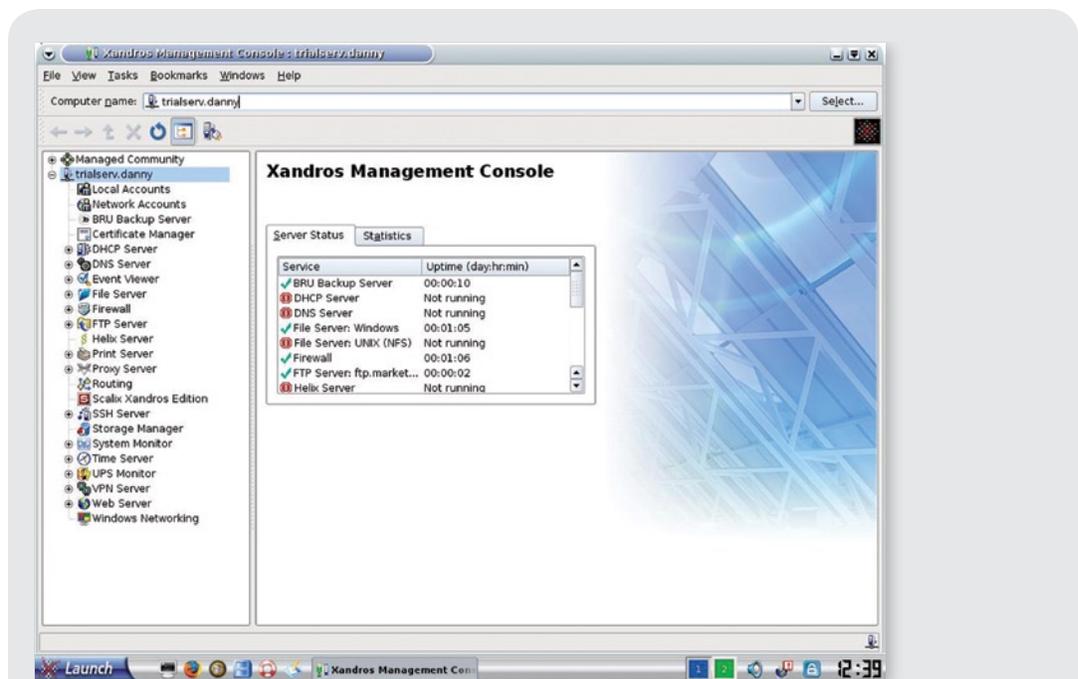
The Xandros Management Console (xMC), which runs on any Xandros Desktop version 3.0 or later, provides a single graphical control panel for easy access and configuration of servers and services. Similar to the Microsoft Management Console in both look and feel, xMC ensures a seamless transition for Windows Server Administrators, without having to develop any new skills. Managing all local and remote servers within the Managed Community, xMC reduces the complexities of administering services spanning multiple servers. This intuitive approach, integrated with the Xandros Managed Community, delivers the unprecedented power and revolutionary management capabilities of the Xandros Server. Administrators with permissions in multiple Managed Communities can easily switch among them using the xMC.

For administrators who do have Linux expertise, xMC's management of Apache, Samba and other Linux-based services will be quite familiar. xMC is designed to respect any changes engendered by manual edits to configuration files, so experienced administrators can leverage the full capabilities of Linux while taking advantage of xMC's reduced complexities, increased efficiencies and ease-of-use.

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Because xMC is a remote management tool, administrators are not required to be at a particular server machine to manage its services; and, any third-party vendor using the Xandros SDK (see p. 13) can develop their software as a plug-in for management from within xMC. This effectively creates an all-in-one console for managing any service running on the Xandros Server.

Dependable deployment

Many small and midsize enterprises share significant concerns about implementing an unknown-to-them technology to drive mission-critical business functions. Because of this—and despite its instability and known security vulnerabilities—Windows remains a de facto standard if only because it represents the path of least resistance.

Xandros recognizes that any change—even the addition of a single Linux server—involves anxiety. Xandros Server offers functionality designed to effectively mitigate the perceived risks associated with transitioning to a Linux server environment, including:

Primary Server fail-over capabilities

In the Xandros Server environment, administrators can configure any secondary server, via a simple wizard, to act as a fail-over for the primary server. In this way, should an irregularity occur, the secondary server immediately assumes the primary server's functions—vastly reducing the likelihood that mission-critical services become unavailable. Once a fail is resolved, administrators can bring the primary server back online with a simple click of a button.

Administrative granularity of permissions

 Xandros Server provides for distributed administrative permissions—meaning that, if desired, the primary administrator can delegate responsibility for subsets of services to subordinate administrators. The subordinate administrators only see and administer the services that they are responsible for when they log in to xMC. This prevents accidental take-down of all the servers due to innocent mistakes, and confers confidence upon newly minted Linux administrators that they can't "break" the system.

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Built-in backup capabilities

Thanks to an integration partnership with The Tolis Group™ Inc., Xandros Server includes BRU Server™ for Linux—a robust data protection solution that protects critical client/server information on just one or two systems, or across an entire organization regardless of size. BRU Server for Linux sets the backup industry's standard for reliability, data recoverability, speed and efficiency while protecting data on networked systems run by Linux.

Additionally, a "Synchronization Module" provides heightened system administrator support of the organization. Much as an end-user backs up PDA data to a desktop system, administrators can allocate portions of the disk stage for individual client system users to backup and restore their own files—which creates significant time savings for both the administrators and end-users.

Dynamic wizards

As seen in the previous section, dynamic wizards simplify the implementation of daily tasks and reduce the likelihood of administrative errors. Additionally, depending upon the specific services installed in a Managed Community, certain wizards will appropriately adapt to reflect the options and tasks for those services.
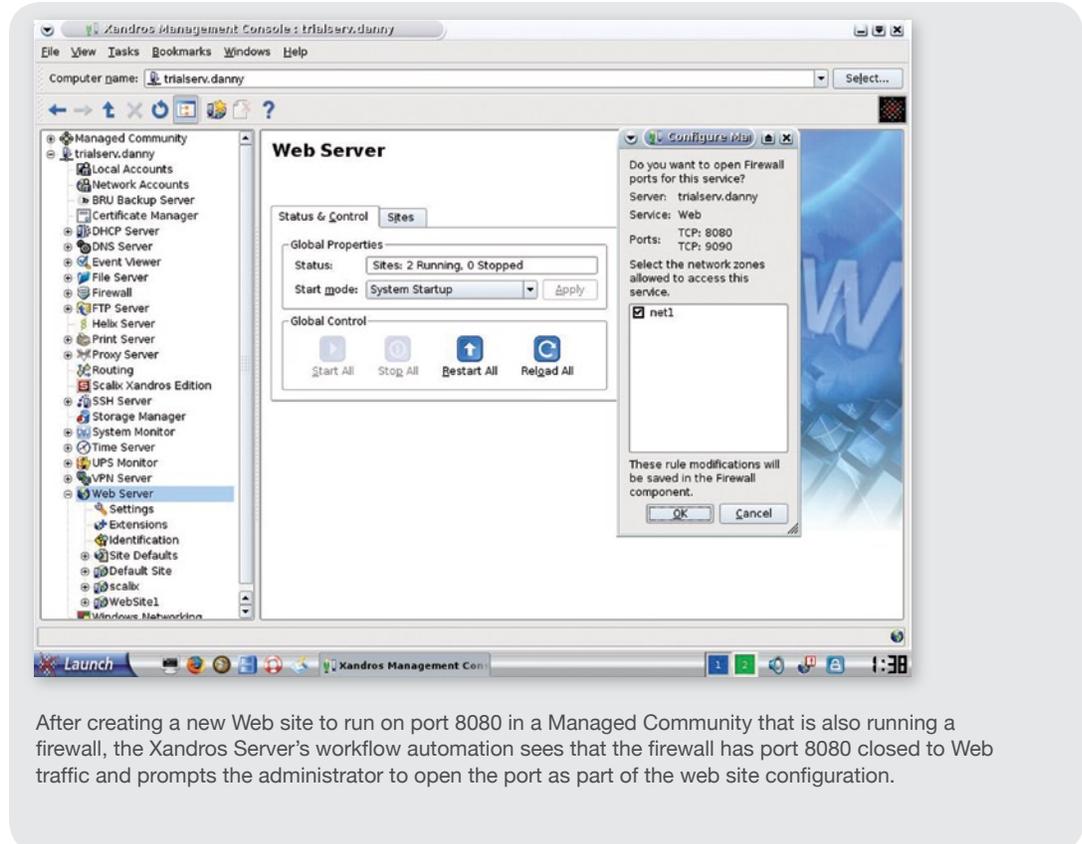
After creating a new Web site to run on port 8080 in a Managed Community that is also running a firewall, the Xandros Server's workflow automation sees that the firewall has port 8080 closed to Web traffic and prompts the administrator to open the port as part of the web site configuration.

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LSB 3.0 certification

Since its inception, Xandros, Inc. has been actively involved in shaping industry standards. As a result, as of this writing, Xandros Server is the first, and only, product of its kind to earn Linux Standards Base (LSB) 3.0 certification. LSB provides the framework for developing compatibilities across the Linux spectrum, and—perhaps most significantly for small to midsize enterprises—enables software developed for Linux to run on any compliant system. With Xandros Server, administrators and executives alike can feel confident the software and capabilities they require are available now.

Full integration with Windows domains

Migrations and deployments—particularly of previously unfamiliar technology—generally occur over a period of time. Budgetary constraints, performance concerns and limited personnel resources often translate to a low risk threshold; add to that fact that Windows is difficult to shake, and SMBs considering a Linux implementation face the challenges and uncertainly of a heterogeneous server environment.

Xandros Server was developed specifically to work with both Windows and other Linux desktop operating systems—making it an easy choice for organizations worried about the risks of a Linux deployment. Building upon its award-winning desktop interoperability with Windows, Xandros Server seamlessly integrates into Windows environments out of the box—serving as either a member of a Windows domain, or as a Windows domain controller providing services to all computers on the network. In both instances, Xandros Server leverages the familiarity of the Windows GUI into a simple graphical interface that administrators can quickly learn and navigate.
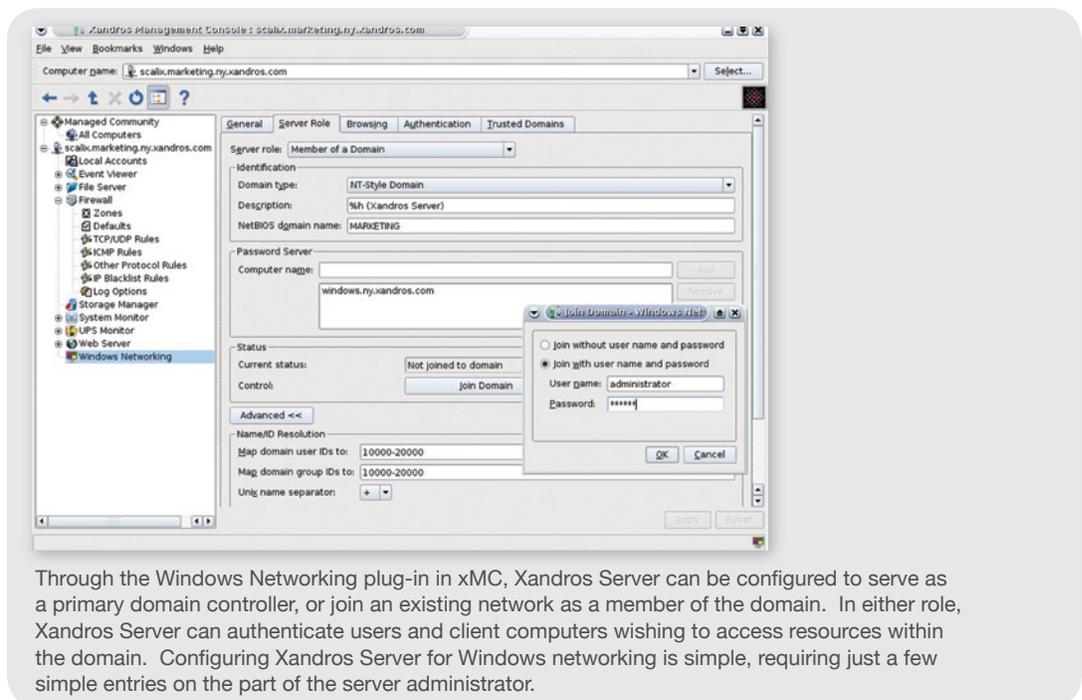
Through the Windows Networking plug-in in xMC, Xandros Server can be configured to serve as a primary domain controller, or join an existing network as a member of the domain. In either role, Xandros Server can authenticate users and client computers wishing to access resources within the domain. Configuring Xandros Server for Windows networking is simple, requiring just a few simple entries on the part of the server administrator.

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Seamless migration of Windows users

For organizations adopting a fully Linux-powered environment, Xandros Sever includes migration tools to seamlessly move users to Xandros Server domains. The migration tool collects all relevant user information from a Windows Server into a file; xMC then imports the file into Xandros Server, and automatically populates the appropriate fields with the data.

Value-driven purchase

For all the hype surrounding the cost-effectiveness of Linux, the reality is that lack of specialized knowledge, resource-intensive management, personnel training, and expensive distributor offerings often erode the savings promised by the technology.

Already having addressed the first three issues, Xandros Server takes its worth a step further by offering a truly low-cost, high-value solution that any small enterprise can afford. For one simple, all-inclusive price, Xandros customers enjoy:

No per-user licensing fees

Five, or five hundred, users can connect to Xandros Server for no additional cost.

Value-added plug-ins

In contrast to other Linux vendors, the Xandros philosophy means providing customers with top-line technology, whether open-source or commercially developed. After surveying potential customers regarding their most critical business application needs, Xandros established relationships to translate this knowledge into key out-of-box functionality. As a result, every shipment of Xandros Server includes these plug-ins from market-leading partners:

- Scalix® Xandros Edition™ – This all-inclusive groupware solution delivers advanced e-mail, calendaring, full-function Microsoft Outlook support, wireless e-mail/PIM, and group scheduling. If purchased alone, a single Scalix license might cost $60; Xandros Server ships with 5 Scalix licenses—a $300 value.

- BRU Backup Server – discussed on page 10, BRU Backup Server protects critical information residing across your client/server network. Xandros Server ships with 6 BRU Backup licenses—approximately a $900 value.

- Helix Server Basic™ – This plug-in enables customers to produce and deliver the highest quality of streaming audio and video to wired and wireless devices. Xandros Server is the first Linux OS to include Helix® media encoding and delivery, and enables systems administrators to leverage streaming technology for more effective communication with end users, customers and partners—regardless of Linux experience. Xandros Server ships with the capability for 10 concurrent connections—a $2,500 value.

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Additionally, Xandros Server ships with IBM DB/2, Oracle, MySQL, and other third-party applications—all of which are either open-source or no-cost solutions—which customers may find valuable in their environments.

Xandros Server Software Development Kit

Beyond today's included third-party solutions, Xandros is committed to providing the most extensive, flexible and compatible Linux server functionality to its customers. The Xandros Server Software Developer's Kit, or SDK, enables independent ISVs to quickly and efficiently develop their own services as Xandros Server plug-ins—which contributes to an expanding ecosystem to support existing and future Xandros Server implementations.

Customers can also leverage the Xandros Server SDK to develop plug-ins to address unique organizational needs. Freely available on the Xandros Web site (www.xandros.com), the SDK enables businesses to leverage the power and ease-of-use of xMC for managing all of the resources and applications in the company.

Any service developed with the SDK can be added to and managed from xMC.

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Summary

Xandros Server provides the power, stability and security of Linux for small and midsize businesses. Designed from inception with this audience in mind, Xandros Server delivers enterprise-class benefits without the associated costs or complexities. Xandros' unique management capabilities require fewer administrative resources, reduce administrative challenges, and translate to several key business benefits not readily realized within traditional Windows server environments:

- **Increased employee productivity** – The collaborative services of Xandros Management Server—shared file repositories, remote network access, shared printers and the ability to publish Web sites—equip users with the necessary tools to maximize their time and output.

- **Scalability to empower future growth** – Xandros Server is a versatile, scalable platform that meets business needs both now and into the future. Extensibility is effortless: Simply add servers as needed, and manage them through the existing Xandros Management Console.

- **Simplicity enables leveraging of existing personnel for other strategic IT projects** – Xandros Server effectively addresses the perennial challenge of understaffed, overburdened IT departments unable to attain the agility necessary to promote business growth. Workflow-based automation and a Windows-like GUI enables efficient execution of routine tasks and liberates more time to focus on strategic, business-critical initiatives.

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14

About Xandros

Founded in 2001 with headquarters in New York, offices in Frankfurt and Mumbai, and research and development facilities in Ottawa, Xandros, Inc. is the leading provider of easy-to-use Linux alternatives to Windows. Its Debian-based products range from standalone consumer desktops to end-to-end enterprise desktop, server, and management solutions featuring workflow automation and centralized, remote administration. Xandros pioneered low cost, graphical operating systems that leverage existing skill sets and provide seamless compatibility with Microsoft Windows programs and networks.

Xandros empowers organizations with Linux while enabling them to leverage their existing infrastructure, administrative resources and applications. The powerful end-to-end Xandros solution allows users to increase desktop productivity, centralize management and reduce administrative complexities. At all levels of the organization—from users to administrators, from desktops to servers—Xandros delivers the power of Linux without the complexity.

For more information, please visit www.xandros.com.

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